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| APPLICATION NO.                 | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------------|-------------|----------------------|---------------------|------------------|
| 10/618,900                      | 07/14/2003  | Akira Shimizu        | ASMJP.126AUS        | 7366             |
| 20995                           | 7590        | 10/22/2007           | EXAMINER            |                  |
| KNOBBE MARTENS OLSON & BEAR LLP |             |                      | ZERVIGON, RUDY      |                  |
| 2040 MAIN STREET                |             |                      | ART UNIT            | PAPER NUMBER     |
| FOURTEENTH FLOOR                |             |                      | 1792                |                  |
| IRVINE, CA 92614                |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|                                 |             |                      | 10/22/2007          | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
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|                              |                 |                |
|------------------------------|-----------------|----------------|
| <b>Office Action Summary</b> | Application No. | Applicant(s)   |
|                              | 10/618,900      | SHIMIZU ET AL. |
| Examiner                     | Art Unit        |                |
| Rudy Zervigon                | 1763            |                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 July 2007.
- 2a) This action is FINAL.                                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11 and 22-24 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-11 and 22-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 August 2005 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 5-7, 9-11, 22, 24, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Horie; Kuniaki et al. (US 5951923 A). Horie teaches a single-wafer-processing type CVD apparatus (Figure 10; column 10; lines 5-38) for forming a thin film on an object ("W"; Figure 10) to be processed, which comprises: a reaction chamber (150; Figure 10; column 10; lines 5-38); a susceptor (154; Figure 10; column 10; lines 5-38) for placing said object ("W"; Figure 10) thereon, which is provided inside said reaction chamber (150; Figure 10; column 10; lines 5-38); a shower plate (144; Figure 10; column 10; lines 15-20) for emitting a jet of reaction gas to said object ("W"; Figure 10), which is disposed parallel and opposing to said susceptor (154; Figure 10; column 10; lines 5-38); an orifice (102; Figure 9,10) for bringing a liquid raw material ("L"; Figure 10) for deposition and a carrier gas (column 11; lines 15-20) into said reaction chamber (150; Figure 10; column 10; lines 5-38), which is formed through a ceiling (101; Figure 9,10; column 10; lines 5-38) of said reaction chamber (150; Figure 10; column 10; lines 5-38); an evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") for vaporizing said liquid raw material ("L"; Figure 10), which is disposed in a space between said ceiling (101; Figure 9,10; column 10; lines 5-38) of said reaction chamber (150; Figure 10; column 10; lines 5-38) and said shower plate (144; Figure 10; column 10; lines 15-20), said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") having a vaporization surface (14; Figure 3A) which is a convex surface facing

the ceiling (101; Figure 9,10; column 10; lines 5-38) of the reaction chamber (150; Figure 10; column 10; lines 5-38), having a center under the orifice (102; Figure 9,10), and extending outward toward an outer periphery of the shower plate (144; Figure 10; column 10; lines 15-20), said vaporization surface (14; Figure 3A) having pores (17; Figure 3A; column 6, line 61 - column 7, line 5) distributed exclusively at its outer periphery; said pore (17; Figure 3A; column 6, line 61 - column 7, line 5 – compare to Applicant's 32; Figure 3) penetrating the vaporization surface (14; Figure 3A – compare to Applicant's 30; Figure 3) in a thickness direction of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section” – compare to Applicant's 3; Figure 3); and a temperature controller (column 10, line 28-39; column 9; lines 45-57) for controlling said shower plate (144; Figure 10; column 10; lines 15-20) and said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section”) at respective given temperatures, as claimed by claim 1.

Horie further teaches:

- i. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein said temperature controller (column 10, line 28-39; column 9; lines 45-57) comprises at least one heater (115a,b; Figure 9; column 9; line 45-58) which is arranged adjacently to said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section”) and to said shower plate (144; Figure 10; column 10; lines 15-20), temperature detectors (column 10; lines 35-36) which are respectively linked to said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section”) and to said shower plate (144; Figure 10; column 10; lines 15-20), and a temperature regulator (column 10, line 28-39; column 9; lines 45-57) which is linked to said heater (115a,b;

Figure 9; column 9; line 45-58) and said temperature detectors (column 10; lines 35-36), as claimed by claim 5

- ii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein said liquid raw material (“L”; Figure 10) is a solution wherein a metal complex raw material or a solid raw material used for deposition is dissolved in a solvent, as claimed by claim 6. Applicant’s claim requirement of raw material gas identity is a claim requirement of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).
- iii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein said carrier gas (column 11; lines 15-20) is an inert gas, as claimed by claim 7. Applicant’s claim requirement of carrier gas identity is a claim requirement of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed

invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- iv. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") is a hollow plate having an upper plate (114; Figure 9), a lower plate (111; Figure 9), and an interior (122; Figure 9) therebetween, said upper plate (114; Figure 9) constituting the upper surface, said lower plate (111; Figure 9) having pores (17; Figure 3A; column 6, line 61 - column 7, line 5), wherein the liquid raw material ("L"; Figure 10) flows through the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the upper plate (114; Figure 9), the interior (122; Figure 9), and the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the lower plate (111; Figure 9) toward the shower plate (144; Figure 10; column 10; lines 15-20), as claimed by claim 9
- v. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the upper plate (114; Figure 9) of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") is a conical surface on which the liquid raw material ("L"; Figure 10) flows from the center to the periphery of the upper plate (114; Figure 9), as claimed by claim 10
- vi. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the Upper plate (114; Figure 9) are arranged along the periphery of the upper plate (114; Figure 9) at equal intervals, as claimed by claim 11

- vii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 5, wherein the at least one heater (115a,b; Figure 9; column 9; line 45-58) is arranged exclusively downstream of the orifice (102; Figure 9,10), as claimed by claim 22
- viii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the upper and lower plates (114+111; Figure 9) are arranged concentrically, as claimed by claim 24
- ix. The apparatus as claimed in Claim 1, wherein the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) are through-holes passing through the vaporization surface (14; Figure 3A) in a direction perpendicular to the vaporization surface (14; Figure 3A) of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section"), as claimed by claim 26

***Claim Rejections - 35 USC § 103***

- 1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
- 2. Claims 2-4, 8, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie; Kuniaki et al. (US 5951923 A) in view of Strang, Eric J. (US 20040129217 A1). Horie is discussed above. Horie does not teach:
  - i. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein a base area of said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section") is within the range of 80% to 120% of a base area of said space, as claimed by claim 2

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- ii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, wherein the given temperature of said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section”) is within the range of 40°C to 300°C, as claimed by claim 3
- iii. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 3, wherein the given temperature of said shower plate (144; Figure 10; column 10; lines 15-20) is in the range of 0-50°C higher than the temperature of said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section”), as claimed by claim 4
- iv. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 1, which further comprises a pressure detector for detecting a pressure in a space between the ceiling (101; Figure 9,10; column 10; lines 5-38) of said reaction chamber (150; Figure 10; column 10; lines 5-38) and said evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - “inner shell section”), and a pressure detector for detecting a pressure in a space between said shower plate (144; Figure 10; column 10; lines 15-20) and said susceptor (154; Figure 10; column 10; lines 5-38), as claimed by claim 8
- v. The apparatus (Figure 10; column 10; lines 5-38) as claimed in Claim 9, wherein the number of the pores (17; Figure 3A; column 6, line 61 - column 7, line 5) of the lower plate (111; Figure 9) is greater than that of the upper plate (114; Figure 9), as claimed by claim 23

Strang teaches a pressure detector (220; Figure 7A,B) in his process gas delivery assembly (210) for measuring the pressure in process gas plenum 216.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Strang's pressure detector (220; Figure 7A,B) to Horie's corresponding gas delivery plenums, further, depending on the physical properties of the raw material source, it would have been obvious to optimize the temperature and pressure operation of Horie's apparatus.

Motivation to add plural of Strang's pressure detector (220; Figure 7A,B) to Horie's corresponding gas delivery plenums is for detecting a pressure change in the process gas delivery and controlling the gas delivery in response thereof as taught by Strang (abstract). Motivation to optimize the temperature and pressure operation of Horie's apparatus is for stable evaporation (Figure 13; column 1; lines 40-55).

***Response to Arguments***

3. Applicant's arguments filed July 26, 2007 have been fully considered but they are not persuasive.

4. Applicant states:

"

However, Horie states: "As shown in FIGS. 3A, 3B and 4, gas flow grooves 17 are formed on the wall of the inner shell side of the vaporizing passage R" (column 5, lines 61-63). The grooves 17 are formed on and along the wall of the inner shell side and do not penetrate the wall in the thickness direction of the wall. The inside of the shell is used for a heating medium (column 9, lines 63-66), and thus, in Horie, the grooves 17 cannot penetrate the wall. Thus, the pores recited in claim 1 and the grooves in Hore are structurally and operationally very different.

"

5. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., see above) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In the context of the Horie reference, the amended claims require "said pore (17; Figure 3A; column 6, line 61 - column 7, line 5 - compare to Applicant's 32; Figure 3) penetrating the vaporization surface (14; Figure 3A - compare to Applicant's 30; Figure 3) in a thickness direction of the evaporation plate (111; Figure 9,10; column 9; lines 44-60; 11; Figure 3A - "inner shell section" - compare to Applicant's 3; Figure 3)". The Examiner believes that a "penetration the vaporization surface" can include not only a hole as applicant supports, but also a groove as taught by Horie. It is the *surface* that is penetrated and required by the amended claims.

***Conclusion***

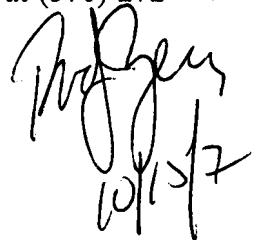
6. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

  
WPI/17